Title (en)

A process for the production of a surface-coated cemented carbide

Title (de)

Verfahren zur Herstellung eines oberflächenbeschichtetes zementiertes Karbides

Title (fr)

Procédé pour la préparation d'un carbure cémenté enduit en surface

Publication

EP 0583853 B2 20041103 (EN)

Application

EP 93203091 A 19890410

Priority

- EP 89303507 A 19890410
- JP 27716188 A 19881031
- JP 27716088 A 19881031
- JP 9118388 A 19880412

Abstract (en)

[origin: EP0337696A1] A coated cemented carbide alloy having jointly a high toughness and high wear resistance is produced by specifying the cooling rate during sintering in efficient manner, which alloy comprises a cemented carbide substrate consisting of a hard phase of at least one member selected from the group consisting of carbides, nitrides and carbonitrides of Group IVa, Va and VIa metals of Periodic Table and a binder phase consisting of at least one member selected from the iron group metals, and a monolayer or multilayer, provided thereon, consisting of at least one member selected from the group consisting of carbides, nitrides, oxides and borides of Group IVa, Va and VIa metals of Periodic Table, solid solutions thereof and aluminum oxide, in which the hardness of the cemented carbide substrate in the range of 2 to 5 mu m from the interface between the coating layer and suhstrate is 800 to 1300 kg/mm<2> by Vickers hardness at a load of 500 g, is monotonously increased toward the interior of the substrate and becomes constant in the range of about 50 to 100 mu m from the interface.

IPC 1-7

C23C 30/00; C22C 29/00; C04B 35/56; B22F 7/02

IPC 8 full level

C22C 29/02 (2006.01); **B23B 27/14** (2006.01); **C22C 1/05** (2006.01); **C22C 29/04** (2006.01); **C22C 29/06** (2006.01); **C22C 29/08** (2006.01); **C22C 29/10** (2006.01); **C22C 29/16** (2006.01); **C23C 16/30** (2006.01); **C23C 30/00** (2006.01)

CPC (source: EP KR US)

C22C 1/051 (2013.01 - EP US); **C22C 29/02** (2013.01 - EP US); **C22C 29/04** (2013.01 - EP US); **C23C 28/00** (2013.01 - KR); **C23C 30/005** (2013.01 - EP US); **C25D 13/06** (2013.01 - KR); B22F 2998/00 (2013.01 - EP US); Y10T 428/12021 (2015.01 - EP US); Y10T 428/12056 (2015.01 - EP US); Y10T 428/12458 (2015.01 - EP US)

Citation (opposition)

Opponent :

- "Hartmetalle", Kieffer R. und Benesovsky F., 1965, Springer Verlag, p.48-53, 114-115, 120-123
- Report Doc. No. WT 044-03 by Jan Qvick SECO Tools AB, Sweden, 20 february 2003
- Report Doc. No. TO20446 by Mats Hättestrand and Jenni Zackrisson, SECO Tools AB, Sweden, 7 march 2003

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Designated contracting state (EPC)

DE FR GB IT SE

DOCDB simple family (publication)

EP 0337696 A1 19891018; **EP 0337696 B1 19941130**; AU 3269889 A 19891019; AU 619272 B2 19920123; CA 1319497 C 19930629; DE 68919509 D1 19950112; DE 68919509 T2 19950406; DE 68926914 D1 19960905; DE 68926914 T2 19961212; DE 68926914 T3 20050310; EP 0583853 A2 19940223; EP 0583853 A3 19941109; EP 0583853 B1 19960731; EP 0583853 B2 20041103; JP H02197569 A 19900806; JP H07103468 B2 19951108; KR 900016498 A 19901113; KR 920001390 B1 19920213; US 4911989 A 19900327

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EP 89303507 A 19890410; AU 3269889 A 19890412; CA 596141 A 19890407; DE 68919509 T 19890410; DE 68926914 T 19890410; EP 93203091 A 19890410; JP 9063889 A 19890412; KR 890004859 A 19890412; US 33581189 A 19890410